Title: Molecular Detection of *Aspergillus flavus* in Georgia peanut, variety Tifguard.

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Abstract: Peanuts provide a good source of protein, minerals, and vitamins to consumers. The US peanut industry suffers great losses of nearly $26 million annually due to contamination by *Aspergillus* species. In spite of strict control measures against *Aspergillus* species, the industry is still facing economic loss due to contamination by this mold. Poor storage of peanuts in commercial outlets can lead to infection by the mold, releasing aflatoxin which is carcinogenic. A number of DNA based techniques are currently available for identification of the fungal population. This research aims at identifying if peanut, the variety Tifguard which is highly recommended for use by peanut farmers by the United States Department of Agriculture (2008) and the first peanut variety known to be resistant to two difficult pathogens, the peanut root-knot nematodes, is also contaminated by *A. flavus*. Peanuts were incubated in petri plates with moist filter paper for seven days. Subsequently, the peanuts with unknown fungi were discarded and A.*flavus* were isolated and subculture on a Potato Dextrose agar. After incubation, DNA*s* was isolated using the DNeasy UltraClean Microbial Kit. Ribosomal DNA was amplified using PCR with universal primers, internal transcribed spacer (ITS)1 and (ITS) 4. Healthy peanuts served as control. Our expected results, using gel electrophoresis for ITS region of *A. flavus,* is 550-600 bp compared to the control. With completed data, we may be able to conclude if Tifguard variety, a commercial peanut used by farmers is not contaminated by *A. flavus,* a carcinogenic pathogen.

Key words: fungi, *Aspergillus flavus*, peanut, Molecular Detection

Reference:

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